



# **Air Quality Permitting Statement of Basis**

**June 29, 2005**

**Permit to Construct No. P-050104**

**Potlatch Corporation  
Post Falls Particleboard  
Post Falls, ID**

**Facility ID No. 055-00018**

Prepared by:

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AIR QUALITY DIVISION

**PUBLIC COMMENT**

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## Acronyms, Units, and Chemical Nomenclatures

AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
BACT	Best Available Control Technology
CAA	Clean Air Act
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
HAPs	Hazardous Air Pollutants
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/hr	pound per hour
MACT	Maximum Achievable Control Technology
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxides
NSPS	New Source Performance Standards
O <sub>3</sub>	ozone
PM	particulate matter
PM <sub>10</sub>	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
Rules	Rules for the Control of Air Pollution in Idaho
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SM	Synthetic Minor
SO <sub>2</sub>	sulfur dioxide
SO <sub>x</sub>	sulfur oxides
T/yr	tons per year
µg/m <sup>3</sup>	micrograms per cubic meter
UTM	Universal Transverse Mercator
VOC	volatile organic compound

## 1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.200, Rules for the Control of Air Pollution in Idaho, for issuing permits to construct.

## 2. FACILITY DESCRIPTION

The Potlatch Post Falls facility manufactures particleboard from wood shavings and resin. Trucks deliver and dump wood shavings in one of two storage buildings. A drag chain feeds the wood shaving to milling machines, which process the wood shavings into furnish. The furnish is dried in an rotary dryer and temporarily stored the outside dry silo. Furnish from the outside dry silo and sanderdust is then passed through a weigh system to either the #1 small blender and main blender, or the #2 small blender. In the blenders, resin is mixed with the sanderdust and furnish. The mix is conveyed to a former where the mix takes the shape of a mat approximately the size of a 4'X8' particleboard panel. The mats are pressed by the particleboard press, allowed to cool, cut to size, and sanded. Scrap from the saw line is processed back into furnish. Sanderdust generated by the process is stored, used for the manufacturing process or as fuel for the facility's Kipper and Sons boiler, or sold. The Kipper and Sons boiler provides steam heat for the process and plant make-up air.

## 3. FACILITY / AREA CLASSIFICATION

Potlatch's Post Falls facility is defined as a major facility in accordance with IDAPA 58.01.01.008.10 for Tier I permitting purposes because the facility has the potential to emit (PTE) NO<sub>x</sub> and VOC at over 100 T/yr. The facility is not a Prevention of Significant Deterioration (PSD) major source because emissions do not exceed the PSD threshold of 250 T/yr. The AIRS classification is "A" because potential emissions of NO<sub>x</sub> and VOC are greater than 100 T/yr.

The facility is located within AQCR 62 and UTM zone 11. The facility is located in Kootenai County which is designated as attainment for Ozone and PM<sub>2.5</sub> and unclassifiable for all other criteria pollutants.

The AIRS information provided in Appendix A defines the classification for each regulated air pollutant at the facility. This required information is entered into the EPA AIRS database.

## 4. APPLICATION SCOPE

The proposed project involves the installation of equipment to recover sanderdust generated by the manufacturing process and to use some of it in the manufacturing process rather than use it as hog fuel. The proposed project also seeks to establish federally enforceable limits below major source thresholds that have compliance demonstration based on materials usage, and performance test information.

### 4.1 *Application Chronology*

February 2, 2005	DEQ received application
March 3, 2005	DEQ determined application complete
April 21, 2005	DEQ received additional information.

## 5. PERMIT ANALYSIS

This section of the Statement of Basis describes the regulatory requirements for this PTC action.

## 5.1 **Equipment Listing**

The following equipment is affected by this permit modification

Drag Chain  
 Rotex Screens #1, #2; Hammermills  
 Blender, Former  
 Board Cooler, Process Fugitives, Rip & Tim Saws  
 Board Trim Hog  
 Sanderdust Storage Silo  
 Sander  
 Boiler Fuel Overs  
 Boiler  
 Particle Dryer  
 Press

## 5.2 **Emissions Inventory**

Table 1 and 2 summarize TAP, PM<sub>10</sub> and VOC annual emissions resulting from the proposed project. PM<sub>10</sub> and VOC PTE values given in Table 1 represent annual emissions at the design maximum capacity of the facility. PM<sub>10</sub> values given in Table 1 also represent controlled annual emissions. TAP emission rates given in Table 2 represent uncontrolled emissions at the maximum design capacity of the facility. A detailed emission inventory has been included in Appendix B

The proposed project decreases HAP emission by 4.37 T/yr and a 37 T/yr increase in VOCs. The facility's potential to emit of VOCs, after this proposed modification, is 135 T/yr.

**Table 1. EMISSIONS ASSOCIATED WITH SANDERDUST PROJECT**

Source Description	Change in PM <sub>10</sub> PTE	Facility-Wide PM <sub>10</sub> PTE	Facility-Wide VOC PTE
	T/yr	T/yr	T/yr
Drag Chain Baghouse Stack	1.12	15.77	
Particle Dryer Multiclone Stack	4.75	17.17	63.34
Scalper Baghouse Stack	0.45	6.38	
Hammermill Baghouse/ Reclaim Baghouse Stack	1.19	10.04	
Sander Air System Baghouse Stack	1.27	17.89	3.31
Sanderdust Silo Baghouse Stack	0.13	1.88	
East/West Sawline Baghouse Stack	1.60	12.39	3.46
Sanderdust Overs Baghouse Stack	0.07	0.94	
Electrostatic Precipitator Stack	NA	5.67	
North, East, & West Press Vents	5.34	19.3	65.28

**Table 2. TOXIC POLLUTANT EMISSION RATES**

Source Description	Acetaldehyde (lb/hr)	Acrolein (lb/hr)	Benzene (lb/hr)	MDI (lb/hr)	Methylene Chloride (lb/hr)	Propionaldehyde (lb/hr)
Drag Chain Baghouse Stack						
Particle Dryer Multiclone Stack	9.29E-02	2.18E-02	9.29E-03		3.11E-03	5.95E-03
Scalper Baghouse Stack						
Hammermill Baghouse/ Reclaim Baghouse Stack						
Sander Air System Baghouse Stack	1.08E-02	9.76E-03	4.01E-03		4.26E-03	1.10E-02
Sanderdust Silo Baghouse Stack						
West Press Vents	1.33E-02	1.17E-02	4.17E-03	2.33E-03	4.60E-03	1.33E-02
East Press Vents	1.33E-02	1.17E-02	4.17E-03	2.33E-03	4.60E-03	1.33E-02
North Press Vents	1.33E-02	1.17E-02	4.17E-03	2.33E-03	4.60E-03	1.33E-02
East/West Sawline Baghouse Stack	4.76E-03	1.21E-02	4.76E-03		5.26E-03	1.35E-02

### 5.3 Modeling

The proposed project increases emissions of PM<sub>10</sub>, acrolein, MDI, propionaldehyde, acetaldehyde, benzene, and methylene chloride. Acrolein, MDI, propionaldehyde, acetaldehyde, benzene, and methylene chloride exceed their respective EL values in IDAPA 58.01.01.585. Modeling was performed to assure compliance with respective AAC and AACC concentrations. No emission limits were included in the permit to construct because the modeled concentration represented the uncontrolled ambient concentration of those pollutants.

PM<sub>10</sub> emissions exceeded significant contribution levels for the annual averaging period only, and a facility wide impact analysis was performed. The results of the modeling analysis are presented below. A detailed modeling analysis has been included in Appendix C.

**Table 3 SIGNIFICANT IMPACT ANALYSIS RESULTS**

Pollutant	Averaging Period	Ambient Concentration (µg/m <sup>3</sup> )	Significant Contribution Levels (µg/m <sup>3</sup> )	Exceeds the SCL (Y or N)
PM <sub>10</sub>	24-hour	4.98	5	N
	Annual	2.25	1	Y

**Table 4 FACILITY-WIDE FULL IMPACT ANALYSIS**

Pollutant	Averaging Period	Facility Impact (µg/m <sup>3</sup> )	Background Concentration (µg/m <sup>3</sup> )	Total (µg/m <sup>3</sup> )	Percent of NAAQS
PM <sub>10</sub>	Annual	19.2	27	46.2	92.4%

**Table 5 TOXIC POLLUTANT CONCENTRATIONS**

<b>Noncarcinogens</b>	<b>Averaging Period</b>	<b>Concentration (µg/m<sup>3</sup>)</b>	<b>AAC (µg/m<sup>3</sup>)</b>	<b>Percent of AAC</b>
Acrolein	24-HR	0.22241	12.5	1.8%
MDI	24-HR	0.02415	2.5	1.0%
Propionaldehyde	24-HR	0.21	21.5	1.0%
<b>Carcinogens</b>	<b>Averaging Period</b>	<b>Concentration (µg/m<sup>3</sup>)</b>	<b>AACC (µg/m<sup>3</sup>)</b>	<b>Percent of AACC</b>
Acetaldehyde	Annual	0.0924	4.50E-01	20.5%
Benzene	Annual	0.02	1.20E-01	16.7%
Methylene Chloride	Annual	0.01832	2.40E-01	7.6%

## **5.4 Regulatory Review**

This section describes the regulatory analysis of the applicable air quality rules with respect to this PTC.

IDAPA 58.01.01.201.....Permit to Construct Required

The proposed project is subject to IDAPA 58.01.01.201 and does not qualify for a PTC exemption; therefore, a PTC is required.

IDAPA 58.01.01.203.....Permit for New and Modified Stationary Sources

This regulation stipulates that the facility must demonstrate compliance with all applicable requirements, not cause or significantly contribute to a violation of the NAAQS, and comply with IDAPA 58.01.01.161. The facility has provided information to assure compliance with this requirement.

IDAPA 58.01.01.209.05.....Permit To Construct Procedures for Tier I Sources

This regulation stipulates the procedures for owner or operators of Tier I sources that require a permit to construct. The facility has complied with the procedures therein.

IDAPA 58.01.01.210.....Demonstration of Preconstruction Compliance with Toxic Standards

The applicant has demonstrated preconstruction compliance for all TAPs identified in the permit application.

IDAPA 58.01.01.300.....Procedures and Requirements for Tier I Operating Permits

The facility is Tier I major facility with a current Tier I operating permit. The proposed project is significant modification of the current Tier I operating permit.

IDAPA 58.01.01.382.....Significant Permit Modification

This regulation stipulates the criteria and procedures for a significant permit modification. The proposed project is significant modification of the current Tier I operating permit that meets the criteria and procedures specified within the regulation.

## **5.5 Permit Conditions Review**

- 5.5.1 Permit Condition 2.4 contains the PM<sub>10</sub> and VOC emission limits for the particleboard manufacturing process.

- 5.5.2 Permit Condition 2.5 contains the visible emission requirements for the particleboard manufacturing process.
- 5.5.3 Permit Conditions 2, 9, 2.10, and 2.13 establish the operating, monitoring, and recordkeeping requirements necessary to demonstrate compliance with opacity and PM<sub>10</sub> emission limits of Permit Conditions 2.4 and 2.5. These permit requirements, along with General Provision 2, require the permittee to operate the control equipment associated with the particleboard manufacturing process when it is operating, and assures compliance with the opacity requirement of Permit Condition 2.5.
- 5.5.4 Permit Conditions 2.3 limits the PTE of facility-wide HAPs below major source thresholds. To address facility concerns regarding the effective date facility-wide HAP limits, language has been included clarifying that the limits are effective 180 days from the commencement of operation of the former.
- 5.5.5 Permit Conditions 2.6 contains stack height and exhaust release requirements necessary to assure compliance with PM<sub>10</sub> annual NAAQS.
- 5.5.6 Permit Condition 2.7 establishes the performance test requirements necessary to demonstrate compliance with Permit Condition 2.3. A performance test to measure total HAP was required in order to demonstrate compliance with the facility-wide HAP emission limit of less than 25 tons per any consecutive 12-month period (T/yr) for any combination of HAPs of Permit Condition 2.7. Performance tests to measure formaldehyde and methanol were required to demonstrate compliance with the facility-wide HAP emission limit of less than 10 tons per any consecutive 12-month period (T/yr) for any single HAP of permit condition 2.7. Permit Condition 2.7 shall be used to develop emission factor data necessary to demonstrate continuing compliance with Permit Condition 2.3. Permit Condition 2.7 also requires the permittee to conduct the performance test at minimum of 90% of the maximum furnish usage rate of the process in order to assure compliance with Permit Condition 2.3.
- 5.5.7 Permit Condition 2.7 defines total HAPs for the Permit. The definition was taken from 40 CFR 63.2292, and was included in the Permit to be consistent with 40 CFR 63, Subpart DDDD. The performance tests listed in Permit Condition 2.7 were also taken from 40 CFR 63, Subpart DDDD in order to be consistent with that subpart.
- 5.5.8 Permit Condition 2.12 requires that the permittee monitor and record monthly and annually the HAP emissions from the particleboard manufacturing using the emission factors and furnish usage records required by Permit Conditions 2.7 and 2.11, respectively, to demonstrate compliance with Permit Condition 2.3. Emissions will be estimated using a spreadsheet similar to that included in Appendix B.
- 5.5.89 Permit Condition 2.8 establishes a maximum pressure for boiler steam in order to limit emissions of. As taken from the July 19, 2001 technical analysis memorandum, the maximum pressure of 300 psi absolute corresponds to an actual dryer temperature of 397 deg. F, the temperature which Potlatch and DEQ has established to limit formaldehyde emissions.

## **6. PERMIT FEES**

The facility submitted the required application fee of \$1,000.00 on February 2, 2005, with their permit application. A processing fee of \$5,000.00 was received on May 25, 2005.



**Table 6. PTC PROCESSING FEE TABLE**

<b>Emissions Inventory</b>			
<b>Pollutant</b>	<b>Annual Emissions Increase (T/yr)</b>	<b>Annual Emissions Reduction (T/yr)</b>	<b>Annual Emissions Change (T/yr)</b>
NO <sub>x</sub>	0.0	0	0.0
SO <sub>2</sub>	0.0	0	0.0
CO	0.0	0	0.0
PM <sub>10</sub>	16	0	16
VOC	37	0	37
TAPS/HAPS	0	-4.37	-4.37
Total:	0.0	0	<b>48.63</b>
Fee Due	<b>\$ 5,000.00</b>		

## **7. PERMIT REVIEW**

### **7.1 Regional Review of Draft Permit**

Regional office review was provided in conjunction with the facility review of the draft permit.

### **7.2 Facility Review of Draft Permit**

A facility draft permit was received by the facility on May 10, 2005.

### **7.3 Public Comment**

An opportunity for public comment period on the PTC application was provided in accordance with IDAPA 58.01.01.209.01.c. During this time, there were no comments on the application and no requests for a public comment period on DEQ's proposed action.

## **8. RECOMMENDATION**

Based on review of application materials, and all applicable state and federal rules and regulations, staff recommends that Potlatch Corporations be issued a proposed PTC No. 050104 for the sanderdust project. The project does not involve PSD requirements.

AC/sd                      Permit No. P-050104

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**Appendix A**  
***AIRS Information***  
**P-050104**

# ***AIRS/AFS<sup>a</sup> FACILITY-WIDE CLASSIFICATION<sup>b</sup> DATA ENTRY FORM***

**Facility Name:** Potlatch Corporation

**Facility Location:** Post Falls

**AIRS Number:** 055-00018

AIR PROGRAM POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	SM80	TITLE V	AREA CLASSIFICATION A-Attainment U-Unclassified N- Nonattainment
SO <sub>2</sub>	A							U
NO <sub>x</sub>	A						A	U
CO	B							U
PM <sub>10</sub>	B		B					U
PT (Particulate)	B							U
VOC	A						A	U
THAP (Total HAPs)	B							
APPLICABLE SUBPART								
			DC					

<sup>a</sup> Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

<sup>b</sup> AIRS/AFS Classification Codes:

- A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For HAPs only, class "A" is applied to each pollutant which is at or above the 10 T/yr threshold, **or** each pollutant that is below the 10 T/yr threshold, but contributes to a plant total in excess of 25 T/yr of all HAPs.
- SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.
- B = Actual and potential emissions below all applicable major source thresholds.
- C = Class is unknown.
- ND = Major source thresholds are not defined (e.g., radionuclides).

**Appendix B**

***Emissions Inventory***

**P-050104**

## **Appendix C**

### ***Modeling Review***

**P-050104**

## **MEMORANDUM**

**DATE:** March 18, 2005

**TO:** Almer Casile, Air Quality Division

**THROUGH:** Kevin Schilling, Stationary Source Modeling Coordinator, Air Quality Division

**FROM:** Dustin Holloway, Modeling Analyst, Air Quality Division

**PROJECT NUMBER:** P-050104

**SUBJECT:** Modeling Review for the Potlatch Corp. Post Falls, Facility ID No. 055-00018

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### **1. SUMMARY**

The Potlatch Corp. (Potlatch) submitted a dispersion modeling analysis in support of a permit to construct application to install and operate equipment to recover sander dust. Potlatch contracted Geomatrix Consultants, Inc. to conduct the analysis. The analysis includes a toxic pollutant impact analysis, a significant impact analysis for PM<sub>10</sub>, and a full-impact analysis for annual PM<sub>10</sub> concentrations. The results of the analysis demonstrate, to DEQ's satisfaction, that the sander dust project will not cause or significantly contribute to a violation of the ambient air quality standards analyzed for this permit. Table 1.1 presents key assumptions which should be considered when developing the permit.

*Table 1.1 KEY ASSUMPTIONS USED IN MODELING ANALYSIS*

<b>Assumption</b>	<b>Explanation</b>
Press vent stacks will be raised to 66 feet	The applicant proposed raising these stacks. The modeling analysis is based on this assumption. Without increasing the stack heights, there is a potential that the significant impact levels for 24-hour PM <sub>10</sub> concentrations will be exceeded.

Based on the results of the analyses, DEQ has determined that the modeling analysis: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data; 3) appropriately adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed that predicted pollutant concentrations at all receptor locations, when appropriately combined with background concentrations, were below stated air quality standards; 5) showed that the increase in toxic pollutant concentrations are within the applicable allowable concentrations in IDAPA 58.01.01.585-586.

### **2. BACKGROUND INFORMATION**

#### ***2.1 Applicable Air Quality Impact Limits***

Potlatch is located in Post Falls, in Kootenai County. Kootenai County is designated unclassifiable for all criteria air pollutants.

**Table 2.1 APPLICABLE REGULATORY LIMITS**

Pollutant	Averaging Period	Significant Contribution Levels ( $\mu\text{g}/\text{m}^3$ ) <sup>a, b</sup>	Regulatory Limit ( $\mu\text{g}/\text{m}^3$ ) <sup>c</sup>	Modeled Value Used <sup>d</sup>
PM <sub>10</sub> <sup>e</sup>	Annual	1	50 <sup>f</sup>	Maximum 1 <sup>st</sup> highest <sup>g</sup>
	24-hour	5	150 <sup>h</sup>	Maximum 6 <sup>th</sup> highest <sup>i</sup> Highest 2 <sup>nd</sup> highest <sup>j</sup>
CO	8-hour	500	10,000 <sup>k</sup>	Highest 2 <sup>nd</sup> highest <sup>g</sup>
	1-hour	2000	40,000 <sup>k</sup>	Highest 2 <sup>nd</sup> highest <sup>g</sup>
SO <sub>2</sub>	Annual	1	80 <sup>k</sup>	Maximum 1 <sup>st</sup> highest <sup>g</sup>
	24-hour	5	365 <sup>k</sup>	Highest 2 <sup>nd</sup> highest <sup>g</sup>
	3-hour	25	1,300 <sup>k</sup>	Highest 2 <sup>nd</sup> highest <sup>g</sup>
NO <sub>2</sub>	Annual	1	100 <sup>f</sup>	Maximum 1 <sup>st</sup> highest <sup>g</sup>
<b>Noncarcinogens</b>				
Acrolein	24-hour	N/A	12.5	Maximum 1 <sup>st</sup> highest <sup>g</sup>
MDI	24-hour	N/A	2.5	Maximum 1 <sup>st</sup> highest <sup>g</sup>
Propionaldehyde	24-hour	N/A	21.5	Maximum 1 <sup>st</sup> highest <sup>g</sup>
<b>Carcinogens</b>				
Acetaldehyde	Annual	N/A	4.50E-01	Maximum 1 <sup>st</sup> highest <sup>g</sup>
Benzene	Annual	N/A	1.20E-01	Maximum 1 <sup>st</sup> highest <sup>g</sup>
Methylene Chloride	Annual	N/A	2.40E-01	Maximum 1 <sup>st</sup> highest <sup>g</sup>
<sup>a</sup> IDAPA 58.01.01.006.93 <sup>b</sup> Micrograms per cubic meter <sup>c</sup> IDAPA 58.01.01.577 for criteria pollutants, IDAPA 58.01.01.585 for non-carcinogenic toxic air pollutants IDAPA 58.01.01.586 for carcinogenic toxic air pollutants. <sup>d</sup> The maximum 1 <sup>st</sup> highest modeled value is always used for significant impact analysis and for all toxic air pollutants. <sup>e</sup> Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers <sup>f</sup> Never expected to be exceeded in any calendar year. <sup>g</sup> Concentration at any modeled receptor. <sup>h</sup> Never expected to be exceeded more than once in any calendar year. <sup>i</sup> Concentration at any modeled receptor when using five years of meteorological data. <sup>j</sup> The highest 2 <sup>nd</sup> high is considered to be conservative for five years of meteorological data. <sup>k</sup> Not to be exceeded more than once per year.				

## 2.2 Background Concentrations

The default background concentrations for small town/suburban areas obtained from DEQ's background concentration data<sup>1</sup> for PM<sub>10</sub> were used in this analysis. The applicant only needed to use the annual PM<sub>10</sub> background concentration because the 24-hour impacts for the project were below the applicable significant contribution levels. The annual PM<sub>10</sub> concentration used in the analysis is 27  $\mu\text{g}/\text{m}^3$ .

## 3. ASSESSMENT OF SUBMITTED MODELING ANALYSIS

### 3.1 Modeling Methodology

Geomatrix Consultants, Inc. conducted dispersion modeling for Potlatch to demonstrate that the proposed project would not cause or contribute to a violation of any NAAQS. ISCST3 was chosen for the analysis. The analysis included a significant impact analysis for PM<sub>10</sub> and a toxic pollutant impact analysis for those pollutants whose emissions exceeded the applicable screening emissions limits. A full impact analysis was included for PM<sub>10</sub> because the annual PM<sub>10</sub> concentration from the project exceeded the significant impact level. The following table summarizes the parameters used in the model.

<sup>1</sup> Hardy, Rick and Schilling, Kevin. *Background Concentrations for Use in New Source Review Dispersion Modeling*. Memorandum to Mary Anderson, March 14, 2003.

**Table 3.1 MODELING PARAMETERS**

Parameter	What Facility Submitted	DEQ's Review/Determination
Modeling protocol	No protocol was submitted	Although no protocol was submitted, the analysis adhered to established guidelines for regulatory dispersion modeling.
Model Selection	ISCST3	ISCST3 is the recommended model for situations where building cavity's do not affect ambient air.
Meteorological Data	Rathdrum 2000 meteorological data	This is the most representative data available for this area. The meteorological data was processed so that any mixing height below 50 meters was reset to 50 meters.
Model Options	Regulatory Default	Regulatory default is the recommended setting.
Land Use	Rural	The applicant estimated the population density within three kilometers of the facility to be approximately 506 people per square kilometer. This is lower than the EPA criteria for urban conditions of 750 people per square kilometer.
Terrain	Terrain effects were analyzed	There is some elevated terrain to the south of the facility. This was accounted for in the analysis.
Building Downwash	Downwash was analyzed	ISCST3 is capable of calculating concentrations in the wake regions of buildings. No calculations for the cavity region were made in this analysis because the cavity regions do not extend into ambient air.
Receptor Network	25 meter spacing along the fenceline; 50 meter spacing out to 1,000 meters; 250 meter spacing out to 5,000 meters	This receptor network is sufficient for this analysis.
Facility Layout	N/A	The facility layout was compared to the submitted plot plan and aerial photographs of the site. DEQ determined that the facility layout used in the analysis appropriately represents the facility.

### 3.2 Emission Rates

The analysis included three different emission increase scenarios. The first is a significant impact analysis for short term PM<sub>10</sub> impacts. The emissions rates in the short term significant impact analysis are the increase in emissions associated with this project. The emissions rates in the long term significant impact analysis are the annual increase in emissions from this project averaged over 8,760 hours. The emissions rates in the facility-wide impact analysis are the maximum potential to emit for each unit. The toxic pollutant emissions rates are the increase in emissions associated with this project. The rates used for carcinogens are the increase in emissions from this project averaged over 8,760 hours. The rates used for non-carcinogens are the increase in hourly emissions. The following tables summarize the emissions rates used in the analysis.

**Table 3.2 CRITERIA POLLUTANT EMISSION RATES**

Stack ID	Description	Significant Impact Analysis		Facility-Wide Impact Analysis
		PM <sub>10</sub> Short Term (lb/hr)	PM <sub>10</sub> Long Term (lb/hr)	PM <sub>10</sub> Long Term (lb/hr)
DRAG_BH	Drag Chain Baghouse		2.56E-01	3.60
MCLONE	Particle Dryer Multiclone	8.96E-01	1.09E+00	3.92
SCALP_BH	Scalper Baghouse		1.04E-01	1.46
RECLM_BH	Reclaim Baghouse		1.63E-01	2.29
SNDR_BH	Sander Baghouse		2.91E-01	4.08
SDSLO_BH	Sanderdust Silo Baghouse		3.02E-02	4.29E-01
WEST_PV	West Plywood Press Vent	3.36E-01	4.06E-01	1.47
EAST_PV	East Plywood Press Vent Baghouse	3.36E-01	4.06E-01	1.47
NORTH_PV	North Plywood Press Baghouse	3.36E-01	4.06E-01	1.47
BC_BH	Sawline Baghouse		2.02E-01	2.83
SOVER_BH	Sanderdust Overs Baghouse		1.51E-02	2.14E-01
ESP	Electrostatic Precipitator Stack			1.29
NSTORE	North Storage Building	3.81E-04	4.60E-04	1.67E-03
SSTORE	South Storage Building	3.81E-04	4.60E-04	1.67E-03



**Table 3.3 TOXIC POLLUTANT EMISSION RATES**

Stack ID	Acetaldehyde (lb/hr)	Acrolein (lb/hr)	Benzene (lb/hr)	MDI (lb/hr)	Methylene Chloride (lb/hr)	Propionaldehyde (lb/hr)
DRAG_BH						
MCLONE	9.29E-02	2.18E-02	9.29E-03		3.11E-03	5.95E-03
SCALP_BH						
RECLM_BH						
SNDR_BH	1.08E-02	9.76E-03	4.01E-03		4.26E-03	1.10E-02
SDSLO_BH						
WEST_PV	1.33E-02	1.17E-02	4.17E-03	2.33E-03	4.60E-03	1.33E-02
EAST_PV	1.33E-02	1.17E-02	4.17E-03	2.33E-03	4.60E-03	1.33E-02
NORTH_PV	1.33E-02	1.17E-02	4.17E-03	2.33E-03	4.60E-03	1.33E-02
BC_BH	4.76E-03	1.21E-02	4.76E-03		5.26E-03	1.35E-02

### 3.3 Emission Release Parameters

**Table 3.4 STACK PARAMETERS**

Stack ID	Easting (m)	Northing (m)	Elevation (m)	Stack Height (ft)	Temperature (°F)	Exit Velocity (m/s)	Stack Diameter (ft)
DRAG_BH	506,674	5,283,490	668	27.0	70.0	30.2	3.0
MCLONE	506,709	5,283,521	668	65.0	120.0	23.2	3.0
SCALP_BH	506,698	5,283,569	668	62.0	70.0	33.9	1.8
RECLM_BH	506,655	5,283,522	668	25.0	70.0	34.2	2.3
SNDR_BH	506,706	5,283,498	668	45.0	70.0	7.7	6.3
SDSLO_BH	506,708	5,283,484	668	80.0	70.0	10.0	1.8
WEST_PV	506,699	5,283,578	668	66.0	120.0	10.5	4.5
EAST_PV	506,705	5,283,578	668	66.0	120.0	10.5	4.5
NORTH_PV	506,702	5,283,582	668	66.0	120.0	10.5	4.5
BC_BH	506,637	5,283,521	668	32.0	70.0	42.2	2.3
SOVER_BH	506,660	5,283,526	668	25.5	70.0	8.5	1.4
ESP	506,682	5,283,479	668	51.0	700.0	13.2	3.0

### 3.4 Results

#### 3.4.1 Significant Impact Analysis Results

**Table 3.5 SIGNIFICANT IMPACT ANALYSIS RESULTS**

Pollutant	Averaging Period	Ambient Concentration ( $\mu\text{g}/\text{m}^3$ )	Significant Contribution Levels ( $\mu\text{g}/\text{m}^3$ )	Exceeds the SCL (Y or N)
PM <sub>10</sub>	24-hour	4.98	5	N
	Annual	2.25	1	Y

The annual PM<sub>10</sub> concentration exceeded the significant contribution levels. A full impact analysis was required to demonstrate compliance with the PM<sub>10</sub> NAAQS.

### 3.4.2 Full Impact Analysis Results

Table 3.6 FACILITY-WIDE FULL IMPACT ANALYSIS

Pollutant	Averaging Period	Facility Impact ( $\mu\text{g}/\text{m}^3$ )	Background Concentration ( $\mu\text{g}/\text{m}^3$ )	Total ( $\mu\text{g}/\text{m}^3$ )	Percent of NAAQS
PM <sub>10</sub>	Annual	19.2	27	46.2	92.4%

### 3.4.3 Toxic Air Pollutants Results

Table 3.7 Toxic Pollutant Concentrations

Noncarcinogens	Averaging Period	Concentration ( $\mu\text{g}/\text{m}^3$ )	AAC ( $\mu\text{g}/\text{m}^3$ )	Percent of AAC
Acrolein	24-HR	0.22241	12.5	1.8%
MDI	24-HR	0.02415	2.5	1.0%
Propionaldehyde	24-HR	0.21	21.5	1.0%
Carcinogens	Averaging Period	Concentration ( $\mu\text{g}/\text{m}^3$ )	AACC ( $\mu\text{g}/\text{m}^3$ )	Percent of AACC
Acetaldehyde	Annual	0.0924	4.50E-01	20.5%
Benzene	Annual	0.02	1.20E-01	16.7%
Methylene Chloride	Annual	0.01832	2.40E-01	7.6%

The results of the dispersion modeling demonstrate, to DEQ's satisfaction, that the sander dust project will not cause or significantly contribute to a violation of any ambient air quality standard.

## 4. ADDITIONAL ANALYSIS

Due to the relatively high annual impacts associated with this facility DEQ conducted an additional analysis for 24-hour PM<sub>10</sub> impacts. DEQ ran the facility-wide model that was submitted by Potlatch and processed it so that 24-hour concentrations were calculated. DEQ made no other changes to the model. The resulting 2<sup>nd</sup> highest concentration was 96.7  $\mu\text{g}/\text{m}^3$ . When added to the background concentration for this area (81  $\mu\text{g}/\text{m}^3$ ) the resulting concentration is 177.7  $\mu\text{g}/\text{m}^3$ . This is significantly higher than the 24-hour NAAQS for PM<sub>10</sub>. DEQ air quality dispersion modeling staff recommends that facility-wide modeling of short term PM<sub>10</sub> emissions be conducted as part of a facility-wide Tier II operating permit.